Giordano Bruno and the Geometry of Language

Arielle Saiber

A B C D E F G H I K L M N O P Q R S T V X Y Z

LITERARY AND SCIENTIFIC CULTURES OF EARLY MODERNITY

GIORDANO BRUNO
AND THE
GEOMETRY OF LANGUAGE

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Giordano Bruno
and the
Geometry of Language

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Editions, Translations, and Abbreviations of Bruno's Works

Recent Critical Editions of Bruno's Works

In the years leading up to the four hundredth anniversary of Bruno's death in the year 2000 and in the few years following, there has been a staggering proliferation of Bruno scholarship. The most comprehensive, new critical editions of Bruno's Italian works have been published in France with Les Belles Lettres (under the direction of Yves Hersant and Nuccio Ordine and edited by Giovanni Aquilecchia, Giorgio Bárberi Squarotti, Jean Seidengart, Maria Pia Ellero, Nicola Badaloni, and Miguel Angel Granada), and in Italy by Mondadori and Adelphi (under the direction of and edited by Michele Ciliberto). Michele Ciliberto and Nicoletta Tirinnanzi have also published a discussion of the history of canonical editions of Bruno's Italian works, and a study of Bruno's system of punctuation, proposing a new canon of Bruno *volgare* (see their *Il dialogo recitato*, 2002). Both Les Belles Lettres and Adelphi are now in the process of publishing new editions of all of Bruno's Latin works. While there is still no "edizione nazionale" of Bruno's *opera omnia*, there is a CD-ROM of the Belles Lettres editions of Bruno's *Dialoghi italiani* and the Fiorentino-Tocco-Vitelli-Imbriani-Tallarigo editions of his *Opera latine conscripta* (Classici del Pensiero Europeo, Nino Aragno Editore, 1999). This useful, searchable resource also contains Vincenzo Spampanato's *Vita di Giordano Bruno*, documents of Bruno's trial, and a bibliography of critical studies on Bruno, as well as a small glitch that should be noted: the page numbers cited are two pages off from the Belles Lettres printed version of the *Furori*. The collaborative efforts of the Centro Ricerche Informatiche per i Beni Culturali of the Scuola Normale Superiore di Pisa and the Istituto Nazionale di Studi sul Rinascimento have released a CD-ROM on Bruno's biography (2000), and are in the process of completing CD-ROMs of Bruno's works and Bruno criticism. Three other important contributions to Bruno Studies are the numerous anastatic reprints of early editions of Bruno's works edited by Eugenio Canone, Michele Ciliberto's concordance to Bruno's Italian works (Ateneo & Bizzarri, 1979), and Chiara Lefons's index of names, places, and notable topics in Bruno's Latin works (Olschki, 1998).

Bibliographies of Bruno's Works and Bruno Scholarship

The first bibliography of Bruno's works as well as Bruno scholarship was done by Virgilio Salvestrini in 1926. It was later updated by Luigi Firpo in 1958. In

1987, Rita Sturlese published the *Censimento*, which documents the condition and location of Bruno's early exemplars in libraries around the world. Maria Elena Severini's volume covering 1951-2000 (2002), and Maria Cristina Figorilli's volume covering 1800-1999 (2003), have brought the bibliography of Bruno editions, translation, and criticism up through 2000. Severini's bibliography has done an exceptional job of organizing the mass of materials into categories and indexes. Also of note is the journal *Bruniana & Campanelliana*, which periodically includes updates on editions and translations of Bruno's works.

Bruno Biographies

Among the earliest scholarly biographies of Bruno were those written by Christian Bartholmèss (1846), Domenico Berti (1868), Hermann Brunnhofer (1882), Luigi Previti (1887), I. Frith (pseudonym for Isabella Oppenheim) (1887), J. L. McIntyre (1903), and Vincenzo Spampanato (1921). Along with McIntyre's biography, the most enduring studies of Bruno's life written in English are Dorothea Waley Singer's of 1950 and Frances Yates's *Giordano Bruno and the Hermetic Tradition* of 1964. Ingrid Rowland is currently preparing a new scholarly biography of Bruno in English, which will be a most welcome addition. In recent Italian scholarship, particularly important are the multiple studies by Giovanni Aquilecchia, Michele Ciliberto, Saverio Ricci, and Eugenio Canone (see *Giordano Bruno: 1548-1600: Mostra storico-documentaria*, 2000), although many other biographies by other scholars are also worthy of note. For the documents of Bruno's trial, see in particular the works by Luigi Firpo, Angelo Mercati, and Davide Dei. There are numerous sensationalist and fictional biographies of Bruno, which, while entertaining, are hardly sources for scholarly research. They are fascinating, however, in terms of what they reveal about the ongoing phenomena of "Brunophilia" and "Brunophobia," and are discussed in Chapter Two.

English Translations of Bruno's Works

As of 2002, with Sidney L. Sondergard and Madison U. Sowell's translation of *The Cabala of Pegasus*, all of Bruno's Italian works are finally available in English. L. Williams translated part of the *Heroic Frenzies* in 1887, and Paul Eugene Memmo translated the entire dialogue in 1964. The year 1950 saw the publication of Dorothea Waley Singer's translation of *On the Infinite Universe and Worlds*, and Sidney Thomas Greenburg's translation of *Cause, Principle and Unity*, which was later translated and edited by Jack Lindsay in 1962, and by Richard J. Blackwell and Robert de Lucca in 1998. In 1964, two more of Bruno's Italian dialogues were published: Arthur D. Imerti's translation of *The Expulsion of the Triumphant Beast*; and Edward Gosselin and Lawrence

Lerner's translation of *The Ash Wednesday Supper* (reprinted in 1995 and 2001), which is a significantly more accurate and objective translation than Stanley Jaki's polemical one of 1975. Also in 1964, *The Candle Bearer* was first available in a collection of plays edited by J. R. Hale and entitled *The Genius of Italian Theater*. *The Candle Bearer* is now also available in Gino Moliterno's 1999 translation.

Of Bruno's forty-four works, there are thirty-seven in Latin. The only ones available in English are *On the Composition of Images, Signs, and Ideas* (translated by Charles Doria and Dick Higgins in 1991, and now out of print) and *Essays on Magic* (bound together with *Cause, Principle and Unity* by Blackwell and de Lucca in 1998). One can, however, find many of Bruno's Latin works translated into Italian, French, Spanish, German, Polish, and Japanese. The English-speaking world, unfortunately, still awaits translations of the majority of Bruno's writing.

Editions of Bruno's Works Used in This Book

Unless otherwise indicated, when citing from Bruno's Italian dialogues and the *Candelaio*, I refer to the Belles Lettres edition (facing page Italian-French) *Oeuvres complètes de Giordano Bruno* (Paris: 1993-199). When citing from Bruno's Latin works, I refer to the *Opera latine conscripta* edited by Francesco Fiorentino, Felice Tocco, Girolamo Vitelli, Vittorio Imbriani, and Carlo Maria Tallarigo (1879-1891) in its eight volume reprint edition (Stuttgart: Friedrich Frommann Verlag, 1962). All translations from Bruno's Italian and Latin are mine unless otherwise noted. For the early exemplars of Bruno's works I consulted on microfilm at the Istituto Italiano per gli Studi Filosofici, please see Section 2 of the Bibliography.

A Note on the Redactions of *La cena de le Ceneri*

In the early 1950s, following Giovanni Gentile's 1907 observation that there was a double redaction of the *Cena*, Giovanni Aquilecchia discovered an exemplar in the Biblioteca Nazionale Centrale di Roma with handwritten edits on separate pages and in the margins, revising in particular the beginning of Dialogue I, parts of Dialogue II, and the beginning of Dialogue III. Roberto Tissoni found an exemplar at the Biblioteca Trivulziana di Milano (Triv. L 594) that contained these very edits. Such significant alterations performed late in the printing to the text, Giovanni Aquilecchia and others have posited, are perhaps indicative of Bruno's desire to adapt his work to the changing political climate in London.

I will be citing from this later, "definitive" version (used by Aquilecchia for the Belles Lettres edition), although in one instance I will cite from the earlier version of the *Cena*, documented in the Belles Lettres' appendices. For details on the variations of the redactions, and for a discussion of the edits made, see Aquilecchia's "Philological Note" and Appendixes I and II to the Belles Lettres edition of the *Cena*, and the "Philological Introduction" to the *Oeuvres complètes* in Vol. I: *Chandelier* (pp. xxiii-xxxviii), as well as his "La lezione definitiva de *La Cena de le Ceneri*" in *Schede Bruniane*. See also Ciliberto's *Giordano Bruno*, and Ciliberto and Tirinnanzi's *Il dialogo recitato*. For the anastatic reprint of the exemplar Triv. L. 594, see Canone's *Opere italiane. Ristampa anastatica delle cinquecentine.*

Citation Format for Bruno's Italian Works

In citing from the *Dialoghi*, when the work is divided only into "Dialogues" and has no "Parts," the uppercase Roman numerals refer to the Dialogue. When the work is divided into Parts, the uppercase Roman numerals refer to the Part, and the lowercase to the Dialogue. The Arabic numbers refer to the pages numbers in the Belles Lettres edition.

Citation Format for Bruno's Latin Works

The Roman numerals in the references to the Latin works indicate the Books and Chapters as Bruno organized them for each text, not the eight volumes in the *Opera latine conscripta* edition of 1962. In the instances in which a text is not divided into Books and Chapters, only the page number is given. The Arabic numbers refer to the pages in the 1962 edition.

Abbreviations of Bruno's Works

Animadversiones	*Animadversiones circa lampadem Lullianam*
Ars deform.	*Ars deformationum*
Ars mem.	*Ars memoriae*
Ars rem.	*Ars reminiscendi*
Articuli adv. math.	*Articuli centum et sexaginta adversus huius tempestatis mathematicos atque philosophos*
Articuli adv. Perip.	*Centum et viginti articuli de natura et mundo Adversus Perpateticos*
Artificium peror.	*Artificium perorandi*
Asino cill.	*Asino cillenico*
Cabala	*Cabala del cavallo pegaseo*
Camoer. acrot.	*Camoeracensis acrotismus*
Candelaio	*Il candelaio*
Cantus	*Cantus Circaeus*
Causa	*De la causa, principio et uno*

Cena	*La cena de le Ceneri*
De comp. architect.	*De compendiosa architectura*
De imag. comp.	*De imaginum, signorum, et idearum compositione*
De immenso	*De innumerabilibus, immenso et infigurabili*
De lamp. combin.	*De lampade combinatoria Lulliana*
De magia	*De magia*
De magia math.	*De magia mathematica*
De minimo	*De triplici minimo et mensura*
De monade	*De monade, numero et figura*
De Mord. circ.	*De Mordentii circino*
De progressu	*De progressu et lampade venatoria logicorum*
De rerum princ.	*De rerum principiis, elementis et causis*
De somn. int.	*De somnii interpretatione*
De spec. scrutin.	*De specierum scrutinio et lampade combinatoria Raymundi Lullii*
De umbris	*De umbris idearum*
De vinculis	*De vinculis in genere*
Explicatio	*Explicatio triginta sigillorum*
Figuratio	*Figuratio Aristotelici Physici auditus*
Furori	*De gli eroici furori*
Idiota triumph.	*Idiota triumphans*
Infinito	*De l'infinito, universo et mondi*
Lampas trig. stat.	*Lampas triginta statuarum*
Libri Phys. Aristot.	*Libri Physicorum Aristotelis explanati*
Med. Lull.	*Medicina Lulliana*
Mordentius	*Mordentius*
Oratio cons.	*Oratio consolatoria*
Oratio valed.	*Oratio valedictoria*
Praelect. geom.	*Praelectiones geometricae*
Sig. sigill.	*Sigillus sigillorum*
Spaccio	*Spaccio de la bestia trionfante*
Summa term. met.	*Summa terminorum metaphysicorum*
Thes. de magia	*Theses de magia*

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Acknowledgments

One study-hall evening in the library of my boarding school, I strayed from my homework to an enticing book on a shelf nearby. Flipping through it my eyes fell upon a curious quotation by a certain "G. Bruno." "The universe is all center," it said, "with its circumference nowhere." I copied the sentence onto a scrap of paper and carried it back to my room where I tacked it to the wall over my desk, never thinking to find out who "G. Bruno" was.

Five years later, in a course called *Metafora et menzogna* at the Università di Bologna, the same sentence appeared, though this time in Italian. In a flash I recalled my scrap of paper. I decided then and there that this "G. Bruno" would somehow play a central role in my senior thesis. What I could not have known at that moment, however, was that "G. Bruno" would be the focus of my doctoral dissertation and, in time, the subject of an entire book.

Before thanking the many people who have helped me unravel some of the complex puzzle that is Giordano Bruno, I would like to offer thanks to whatever *occasione* it was that introduced me to Bruno's thought when I was fifteen. I also wish to somehow thank Bruno himself for his courage in thinking what was thought in his time to be the unthinkable. I hope what I have written would have pleased him, although I imagine its unavoidable *pedanteria* would, instead, fuel his polemical spirit and elicit tremendous animadversions.

But thanks are always due to those who crack the whip of criticism. It is to Giuseppe Mazzotta, the *immenso*, who I, the *minimo*, owe infinite gratitude—gratitude for his guidance, encouragement, discussions, and provocations.

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Alongside the people who have strengthened the fiber of this book are a number of institutions and fellowships that have supported it. I thank the Istituto Italiano per gli Studi Filosofici for their generous research fellowships and for giving me access to their microfilm collection of early editions of Bruno's works. I thank the Istituto Nazionale di Studi del Rinascimento for access to their comprehensive collection of Bruno scholarship, and the Warburg Institute, the Folger Institute, and the Radcliffe Institute for Advanced Study for fellowships that allowed me the privilege of using their libraries and the luxury of research time. I am deeply indebted to my home institution, Bowdoin College, which has provided me with generous support for my research abroad and with wonderful faculty and students with whom to work back home. And, finally, I thank Erika Gaffney and the series editors of Ashgate for starting this exciting, new interdisciplinary series, "Literary and Scientific Cultures of Early Modernity," which this manuscript is honored to join.

This book is dedicated with great love to two people who enthusiastically followed my academic pursuits long before I thought to pursue a career in academia. They have tirelessly sent me clippings about anything to do with Italy, the Renaissance, and "science and the arts" from *The New York Times*, *The New Yorker*, and even occasionally *Gourmet*. They have delighted in coming to know a curious cast of Renaissance Italian characters and the parts they played in the history of ideas. They have courageously listened to my tales of life in the *quartieri* of Naples, recognizing that it is the city's powerful heart that calls me to return again and again. They have been as present during my melodramatic moments of frustration as during my joyous intervals of discovery. Seekers of truth, justice, and freedom, my parents journey tirelessly forward. To John Heyman and Julia Saiber-Heyman: heroes of thought, heroes of action.

Introduction

> *"The bridge is not supported by one stone or another," Marco answers, "but by the line of the arch that they form."*
>
> —Italo Calvino, *Invisible Cities*

Shape and space inhabit language: language of persuasion, beauty, inspiration, and the everyday. They direct our line of reasoning; they help us find our angle of approach; they curve through our discourse; they lead us to the point. Geometry, the measure of space and of form within space, is part of language's body. It is the skeleton of sentences, the marrow of words. By peering through language's skin recurring shapes of a geometric nature emerge, like the fractal branching of blood vessels or the bilateral symmetries of ribs and appendages. They are the sublime and the monstrous geometries building and maintaining the literary body.

Nature's patterns fill the world in which we live: the Fibonacci series of seed-packing in sunflowers and daisies, hexagonal beehives and snowflakes, the golden ratio of nautilus shell chambers, concentric circles on a disturbed lake, the perfect sphere of a soap bubble. We imitate this geometry in our art, music, and architecture, and express it in the symmetry of our own bodies. Geometry likewise lies beneath the content of our writing. Language has a verbal geometry, and writing necessitates a crafting of space. Geometric space and form are implicit in language's body, and geometry can be used as a tool to enhance the powerful modes of communication of which language is capable. While many authors over the course of literary history have noted and consciously elaborated the relationship between geometry and language, few have done so as comprehensively and explicitly as the sixteenth-century polymath Giordano Bruno.

Giordano Bruno: philosopher, poet, playwright, mnemonist, and magus. He managed to impress and inspire, as well as infuriate and frighten, royalty, scholars, clergy, and laymen alike. He spent time at Henry III's court in Paris, Queen Elizabeth I's court in London, and Emperor Rudolf II's court in Prague. He taught mathematics, rhetoric, and the art of memory. A prolific writer, he composed nearly fifty texts between 1582 and his imprisonment by the Inquisition in 1592 and execution at the stake in 1600 as an "unrepentant heretic." But with all that Bruno was, has been thought to be, or has been made to be, at his core he was a poet and an architect of ideas. His crafting of language and crafting of ideas are intimately related in the way they exploit highly symbiotic systems. Bruno made geometry speak and language display. The commerce between symbolic and linguistic lexicons in the Renaissance gave Bruno much to work with, but it was Bruno, more than any other thinker of his time, who gave such commerce life.

To describe the world around him, its qualities and vicissitudes, Bruno forged a network of figurative vocabularies—of number, shape, space, and word—as if to say that no notational system on its own had the ability to represent the truths and infinitude of the universe in its entirety. The best possible understanding of the universe, Bruno would have us believe, only happens when these various systems are united. This unity forms the lexicon of Bruno's "geometric rhetoric": a rhetoric in the classical sense of the term—an art of persuasion—although notably different from that presented in the codified treatises of Aristotle, Cicero, Quintilian, or Ramus.

Bruno's geometric rhetoric is a reflection of the philosophical notions it aims to present: it persuades a reader to think "infinitely" as it describes the nature of the infinite; to see the paradox of writing about paradox; to experience the possibility of language's ability to denote the ineffable. For Bruno to "write about" the infinite, the paradoxical, and the ineffable, he needed a style that enabled him to "write with" infinity, paradox, and ineffability. From his long lists parodying the torments of the Petrarchan lover to his vastly permutable mnemonic strategies, Bruno was a craftsman of the language of space and the space that is implicit within language. He used symmetries, proportions, and measures to give his language rhetorical power. Geometry served a creative function for Bruno's writing: it was a *poiesis*, a "making" in the literal sense of the word, similar to that of Plato's demiurge, the principles of Pythagoras' *tetraktys*, and Johannes Kepler's *facultas formatrix*. Bruno's geometric rhetoric attempted to figure out the universe through configuring it, with a multiplicity of spatial and linguistic "figuratives."

Bruno wrote during a dramatic moment in Italy's intellectual history. Humanism had glorified human reason and free will, emphasizing man's place at the center of the universe. Copernicus's theories, and later the findings of Galileo and Kepler, displaced humanity from that center and challenged both Christian and humanist doctrines regarding the order of the world around them. The Church fought to retain the authority threatened by both movements. Many among the educated class familiar with esoteric learning, like Bruno, looked to locate and empower themselves through spatial manipulation and symbolic permutation, such as memory theaters, encyclopedias, kabbalah, natural magic, alchemy, and searches for the "perfect language." They believed these figurative nomenclatures and combinatoric systems helped orient the mind's approach toward the workings of the cosmos and the Divine. What individuates Bruno from his contemporaries, however, is that not only did he make explicit use of multiple figurative systems to grasp the complex nature of the universe, but he also used these systems to reveal the ultimate futility of all human systems to achieve true understanding of its nature. In Bruno's gnoseology, there is an asymptotic movement toward "the true," but never its complete attainment. The mysteries of the natural and celestial worlds appear merely as shadows to our minds. The pursuit of true knowledge—simultaneously painful and joyful that it is—is the pursuit of something that lies beyond our grasp. It is the very space, form, and direction of this journey to Truth that Bruno's writing attempts to represent and enact.

In his study of the symbol of the circle in the Western literary and philosophical traditions, Georges Poulet cites Bruno as one of the most "circle-obsessed" thinkers of the Renaissance, which is saying a great deal given the importance of the circle/sphere to the philosophy, theology, physical science, and aesthetics of that time.[1] In fact, Bruno's philosophical dialogues and comedy, as well as his works on the art of memory, magic, and mathematics, are brimming with circles. They appear in his cosmology of the infinite, in his notion of the *minimum*'s basic form, in his physical intuition about the nature of motion, in his memory wheels, in his web of magical *vinculi* linking the celestial and terrestrial worlds, and in his view of knowledge as a process without end.

Bruno's writing indeed contains verbal patterns that signal an unusual sensibility to the shape of space—whether of the heavens, between people, on a page, or of one's mind. Not only the circle, but also various kinds of lines, angles, curves, and points participate in the articulation of his thought. His language not only speaks about shape and space, but molds and models it. It is the aim of this book to show where and how geometric forms appear in Bruno's language, and why it is important as readers of Bruno, as well as readers of literature in general, to be able to see language's implicit geometry.

To understand Bruno's geometry is to know the mathematics he embraced and opposed. The Greek mathematical texts recovered by the humanists in the fifteenth century had been variously translated and made accessible. The one-point perspective of Leon Battista Alberti was evolving into a Baroque multiplicity. There were breakthroughs in algebra by François Viète and Girolamo Cardano. Tycho Brahe's trigonometric tables and Kepler's calculations gave elliptical paths to the heavenly bodies. And there continued to be, simultaneously and at times symbiotically, the mystical-magical line of thought that manifested in mathematics through numerology, combinatorics, cryptology, and the desire to make the natural world and all in it fit into ideal Platonic shapes and patterns.

In order to speak of a "geometry of language," one has to know something of the language of geometry. To speak of Bruno's particular geometry of language, one needs to take into consideration his mathematical works (*De somnii interpretatione*, 1586; *De Mordentii circino*, 1586; *Articuli centum et sexaginta adversus huius tempestatis mathematicos atque philosophos*, 1588; *Camoeracensis acrotismus*, 1588; *Praelectiones geometricae*, 1591; *Ars deformationum*, 1591; and his three Frankfurt poems of 1591: *De triplici minimo et mensura*; *De monade, numero et figura*; and *De innumerabilibus, immenso et infigurabili*), as well as the mathematical texts and traditions Bruno would have known. While never a dogmatic adherent to any system other than his own, Bruno drew most of his mathematical knowledge from the works of ancient authors such as the Pythagoreans, Euclid, Plato, and Aristotle. He was largely uninterested in later commentators and the mathematicians of his time, opposing the calculations and measurements that required approximation. For Bruno, this